

Starch Partners, LLC
(dba Aroostook Starch Company)
Aroostook County
Fort Fairfield, Maine
A-817-71-C-R

Departmental
Findings of Fact and Order
Air Emission License

After review of the air emissions license renewal application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., §344 and §590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

Starch Partners, LLC (doing business as Aroostook Starch) has submitted an air emission license renewal application for the operation of the starch plant in Fort Fairfield, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Fuel Burning Equipment

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate (gal/hr)</u>	<u>Fuel Type</u>	<u>Stack #</u>
Boiler #1	25.1	179.5	#2 fuel oil	1
Boiler #2	25.1	179.5	#2 fuel oil	1

Stack 1 is 82 feet, with an inside diameter of 3.7 feet and an exit cone diameter of 3 feet.

There are four smaller oil furnaces which are used for building heat. These are mentioned for inventory purposes only, since they are below the license thresholds.

Process Equipment

	Max. Raw Material Production Rate	Pollution Control Equipment
Starch Dryer 1	3.09 tons/hr starch	Cyclone, Scrubber
Starch Dryer 2	3.09 tons/hr starch	Cyclone, Scrubber
Protein Dryer *	811 lb/hr protein	Cyclone, Scrubber

* This dryer occasionally processes starch.

C. Application Classification

The application for Aroostook Starch does not include the licensing of increased emissions or the installation of new or modified equipment. Therefore, the license is considered to be a renewal of current licensed emission units only and has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (last amended December 24, 2005).

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (last amended December 24, 2005). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

Before proceeding with the control requirements for each unit, a general process description is provided to identify where the equipment fits into the process.

Process Description

Aroostook Starch previously produced starch and protein from potatoes, but now processes raw starch brought in from other facilities.

The starch goes through a staged process that removes impurities. The ‘cleaning’ process consists of tanks to get the correct thickness of slurry, refining units and filters in series to remove dirt and other impurities, and chemical additives to remove any bacteria and neutralize the product. The next steps are the drying and final separation stages. The material is mixed with hot air (supplied by the boilers) and sent into a vertical run of pipe (the ventilator). The pipe is formed into a large inverted U which enters a cyclone. The cyclone separates the starch particulate from the gas stream and sends the refined starch on to the packaging system. The remaining air (mixed with approximately 1-5% starch) enters the scrubber. A water spray contacts the remaining particulate in the gas stream and through an entrainment stage, the water/starch mixture exits the scrubber as a slurry. There are two starch cyclone-scrubber systems.

There is also a cyclone for protein recovery. The resulting air mixture passes through a scrubber after the protein cyclone, similar to the starch process. At this time, the protein process is not being used for protein, but is used periodically to process the starch by-product (the non-food grade starch).

The starch is then packaged as product. The pulp and water mixture is trucked to another facility in the area. In addition, some of the concentrated fruit-water, which is a liquid waste produced during the refining process, may be used as a soil amendment.

B. Boilers 1 and 2

Boilers 1 and 2 are Cleaver Brooks package boilers, each rated at 25.1 MMBtu/hr. The boilers fire #2 oil to provide steam to heat the building and for the production process. The boilers vent through the same 82 foot stack, which is greater than 60% Good Engineering Practice (GEP) height.

NSPS requirements

The boilers were installed in 2001 and are subject to the New Source Performance Standards (NSPS) 40 CFR (Code of Federal Regulations) Part 60, Subpart Dc for steam generating units greater than 10 MMBtu/hr manufactured after June 9, 1989. Aroostook Starch shall meet all of the 40 CFR Part 60, Subpart Dc requirements for the boilers, including recordkeeping, recording, and reporting of fuel usage.

The following is a summary of the BPT analysis for each of the Boilers 1 and 2:

PM and PM₁₀ - 0.025 lb/MMBtu based on the previous BACT analysis
SO₂ – combustion of #2 fuel oil with a sulfur content not to exceed 0.3%

NO_x – low NO_x burners, flue gas recirculation, and 0.2 lb/MMBtu

CO – good combustion, 1.7 lb/hr

VOC – good combustion, 0.7 lb/hr

Opacity – Visible emissions from the combined boiler stack shall not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block average in a 3-hour period, based on the previous BACT analysis.

The boilers shall be limited to 2,260,838 gallons/year of #2 fuel oil, based on a 12 month rolling total.

C. Starch Dryers 1 and 2

The two starch dryers are each rated at a maximum raw starch processing rate of 3.09 tons/hr and were installed in 2001. The dryers are each controlled by a cyclone and scrubber unit.

The cyclones are rated at 95-99% efficiency for the removal of starch particulate from the gas stream. Using the more conservative 95% efficiency, 309 lb/hr of particulate reaches each scrubber. The scrubbers are rated at 99.95% efficiency, therefore the starch emissions from each scrubber are calculated to be 0.15 lb/hr.

BPT for each starch dryer system is the use of the cyclone and scrubber unit and a particulate emission limit of 0.15 lb/hr. Opacity from each cyclone and scrubber unit shall be limited to 10%, based on a 6 minute average. Maintenance logs shall be kept for the cyclone and scrubber units.

D. Protein Dryer

The protein dryer is rated at a maximum raw protein processing rate of 811 lb/hr and was installed in 2001. The dryer is controlled by a cyclone and scrubber unit.

The cyclone is rated at 95-99% efficiency for the removal of protein particulate from the gas stream. Using the more conservative 95% efficiency, 40.5 lb/hr of particulate reaches the scrubber. The scrubber is rated at 99.95% efficiency, therefore the protein emissions from the scrubber is calculated to be 0.02 lb/hr.

Currently, the protein dryer is being used occasionally to process the non-food grade starch by-product. It is not processing protein at this time.

BPT for the protein dryer system is the use of the cyclone and scrubber unit and a particulate emission limit of 0.02 lb/hr. When processing starch, the limit shall be 0.15 lb/hr. Opacity from the cyclone and scrubber unit shall be limited to 10%,

based on a 6 minute average. A maintenance log shall be kept for the cyclone and scrubber unit.

E. Handling Systems, Material Stockpiles, and Fugitive Emissions

Based on 06-096 CMR 101, visible emissions from fugitive emission sources (including bulk handling systems, material stockpiles and roadways) shall not exceed an opacity of 20%, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20% in any one (1) hour.

F. Annual Facility Licensed Emissions

Aroostook Starch shall be restricted to the following annual licensed emissions, based on a 12 month rolling total, calculated using the fuel limit of 2,260,838 gallons/year of #2 fuel oil and the particulate emissions from the process (using worst-case of starch in all three lines):

Total Licensed Annual Emissions for the Facility
Tons/year
(used to calculate the annual license fee)

	PM	PM₁₀	SO₂	NO_x	CO	VOC
Boilers	4.0	4.0	47.5	31.7	10.7	4.4
Dryers	2.0	2.0	-	-	-	-
Total TPY	6.0	6.0	47.5	31.7	10.7	4.4

Note: The tons/year table corrects calculation errors from the previous license.

III.AMBIENT AIR QUALITY ANALYSIS

According to 06-096 CMR 115, the level of air quality analyses required for a renewal source shall be determined on a case-by case basis. Modeling and monitoring are not required for a renewal if the total emissions of any pollutant released do not exceed the following:

<u>Pollutant</u>	<u>Tons/Year</u>
PM	25
PM ₁₀	25
SO ₂	50
NO _x	100
CO	250

Based on the total facility emissions, Aroostook Starch is below the emissions level required for modeling and monitoring.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-817-71-C-R subject to the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

STANDARD CONDITIONS

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 M.R.S.A. §347-C).
- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [06-096 CMR 115]
- (3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if

- construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 CMR 115]
- (4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 CMR 115]
 - (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353. [06-096 CMR 115]
 - (6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 CMR 115]
 - (7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 CMR 115]
 - (8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 CMR 115]
 - (9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [06-096 CMR 115]
 - (10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [06-096 CMR 115]
 - (11) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:

- A. perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:
 - 1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
 - 2. pursuant to any other requirement of this license to perform stack testing.
 - B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and
 - C. submit a written report to the Department within thirty (30) days from date of test completion.
[06-096 CMR 115]
- (12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:
- A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and
 - B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and
 - C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.
[06-096 CMR 115]
- (13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [06-096 CMR 115]

- (14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emission and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 CMR 115]
- (15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 CMR 115]

SPECIFIC CONDITIONS

(16) **Boilers 1 and 2** (25.1 MMBtu/hr each)

- A. Total fuel use for Boilers 1 and 2 shall not exceed 2,260,838 gal/yr of #2 fuel oil with a maximum sulfur content not to exceed 0.3% by weight, based on a 12 month rolling total. Compliance shall be demonstrated by fuel records from the supplier showing the quantity of fuel delivered and the percent sulfur of the fuel. Records of fuel use shall be kept on a monthly and 12-month rolling total basis. [06-096 CMR 115, BPT]
- B. Emissions from each boiler shall not exceed the following [06-096 CMR 115, BPT]:

Pollutant	Lb/MMBtu	lb/hr
PM	0.025	0.63
PM ₁₀	0.025	0.63
SO ₂	--	7.5
NO _x	0.2	5.0
CO	--	1.7
VOC	--	0.7

- C. Visible emissions from the combined boiler stack shall not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block average in a 3-hour period. [06-096 CMR 115, BPT]

(17) Dryer Systems (including cyclones and scrubbers)

- A. Particulate matter emissions from each of the dryer/cyclone/scrubber systems shall not exceed the following [06-096 CMR 115, BPT]:

	PM (lb/hr)
Starch Process 1	0.15
Starch Process 2	0.15
Protein Process	0.02
Starch used in Protein Process	0.15

- B. Opacity from each of the two starch cyclone/scrubber systems and the one protein cyclone/scrubber system shall be limited to 10% opacity, based on a 6 minute block average. [06-096 CMR 115, BPT]
- C. To document maintenance of the cyclones and scrubbers, the Aroostook Starch shall keep a maintenance log of equipment failures as well as all routine maintenance. [06-096 CMR 115, BPT]

(18) Handling Systems, Material Stockpiles, and Fugitive Emissions

Visible emissions from fugitive emission sources (including bulk handling systems, material stockpiles and roadways) shall not exceed an opacity of 20%, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20% in any one (1) hour. [06-096 CMR 101]

(19) New Source Performance Standards

Boilers #1 and #2 are subject to Federal New Source Performance Standards, 40 CFR Part 60, Subpart Dc. Aroostook Starch shall comply with all requirements of 40 CFR Part 60, Subpart Dc including, but not limited to, the following:

- A. Aroostook Starch shall record and maintain records of the amount of fuel combusted during each day.
- B. Aroostook Starch shall submit semi-annual reports to EPA and the Department. These reports shall include the calendar dates covered in the reporting period and records of fuel supplier certifications. The semi-annual reports are due within 30 days of the end of each 6-month period.
- C. The following address for EPA shall be used for any reports or notifications required to be copied to them: USEPA Region 1, Attn: Air Compliance Clerk
1 Congress Street, Suite 1100
Boston, MA 02114-2023

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(20) **Annual Emission Statement**

In accordance with *Emission Statements*, 06-096 CMR 137 (last amended July 6, 2004), the licensee shall annually report to the Department the information necessary to accurately update the State's emission inventory by means of:

- A. A computer program and accompanying instructions supplied by the Department; or
- B. A written emission statement containing the information required in 06-096 CMR 137.

Reports and questions should be directed to:

Attn: Criteria Emission Inventory Coordinator
Maine DEP, Bureau of Air Quality
17 State House Station
Augusta, ME 04333-0017 Phone: (207) 287-2437

The emission statement must be submitted by the date specified in 06-096 CMR 137.

- (21) Aroostook Starch shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 M.R.S.A. §605).

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF , 2008.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAVID P. LITTELL, COMMISSIONER

The term of this license shall be five (5) years from the signature date above.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: December 1, 2006

Date of application acceptance: December 1, 2006

Date filed with the Board of Environmental Protection: _____

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.